16. NIGHTCAP VILLAGE INTEGRATION OF VILLAGE CONCEPT WITH THE SURROUNDING LAND

Biolink Pty Ltd - 2006

Nightcap Village

Integration of village concept with surrounding landuse

March 2006

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SUMMARY

Rarely does an opportunity present itself to effectively integrate a proposed new village with a change to surrounding landuse such that it has the potential to enhance the proposed community's lifestyle, provide important employment opportunities and generally promote more ecologically sustainable land use practices.

The proposed Nightcap village site, is surrounded by a 1200ha multiple-tenured, land parcel (the balance landholdings), ownership of which is vested in the proponent. Despite a history of disturbance, the balance landholdings retain a number of important conservation values, including large areas of sclerophyll forest and patches of lowland sub-tropical rainforest. A number of threatened flora and fauna species are also known to occur. Current land use activities include plantation forestry, cattle grazing and educational pursuits.

The Nightcap village proposal has the potential to set benchmark standards for ecologically sustainable development practices in the Tweed LGA. In support of this, the balance landholdings also present related opportunities for consideration that, collectively, can only serve to enhance the village and its longer term economic sustainability. Foremost amongst these are opportunities for eco-tourism, a concept enabled by the size of the balance landholdings generally, the proximity of adjoining national park estate and the presence of a large, centrally located precinct known as Central Hill.

The long-term outcome envisaged within this document is for an alternative land use scenario that would see approximately 60-70% of the balance landholdings dedicated to conservation and eco-tourism pursuits, with the remaining 30-40% potentially devoted to plantation forestry. The report concludes by identifying some of the issues arising from such a material change in landuse, while also providing a series of interim recommendations intended to further inform and guide this process in the short to medium term.

Preamble

Ecologically Sustainable Development (ESD) represents one of the greatest challenges facing Australia's governments, industry, business and community. The *National Strategy for Ecologically Sustainable Development* (NSED) provides both strategy and a framework for governments to direct policy and decision making towards long-term benefits (as opposed to short-term gain) in order to ensure inter-generational equity. While there is no universally accepted definition of ESD, in 1990 the Australian Commonwealth Government proposed the following definition:

"using, conserving and enhancing the communities resources so that ecological processes on which life depends are maintained, and the total quality of life, now and in the future, can be increased"

Put simply, ESD is development which aims to meet the needs of Australians today, while conserving ecosystems for the benefit of future generations. To do this, our society needs to develop ways of using those environmental resources which form the basis of our economy in a way which maintains and where possible, improves their range, variety and quality.

Core objectives of the NSED are:

- to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations.
- to provide for equity within and between generations.
- to protect biological diversity and maintain essential ecological processes and life-support systems.

Prepared by the Ecologically Sustainable Development Steering Committee

Endorsed by the Council of Australian Governments

December, 1992

Introduction

This report has been prepared for Peter Van Leishout, the purpose of which is to examine the potential for effective integration of a proposed new village site near Khungur with that of a large area of adjoining 1(a) lands, which for the purposes of this report will generally be referred to as the balance landholdings. The report has been structured so as to (ideally) present a logical sequence of information, concluded by a dot point discussion of the issues that arise, along with a related series of recommendations to facilitate the overall objective of demonstrating the potential benefits associated with a material change in landuse philosophy and activities.

The report has been primarily based on a desk-top review of available information that has been supported by several site inspections, informal discussions with staff of the Dept. of Environment and Conservation, meetings with the landholder and other interested parties. The report has been prepared by Biolink's principal, Dr. Stephen Phillips, who has an extensive background in natural area management.

THE STUDY AREA

1. Location and Planning Context

The study area comprises a multiple-tenured land parcel in single ownership approximately 1300ha in size and located off the Murwillumbah - Kyogle Road approximately 25kms southwest of Murwillumbah. Forty five hectares of land within the study area are currently zoned 2(d) – Village and the remainder 1(a) Rural, for purposes of the *Tweed Local Environmental Plan 2000* (the LEP). Clause 52 (existing and future dam areas) of the LEP further applies to any proposed development within those parts of the study area that occur within the Byrrill Creek catchment. Clause 52 relates to a need to consider the consequences of any proposed development in terms of potential impacts on water quality, the implications of which may necessitate, amongst other things, that a soil and water management plan may need to be prepared. Figure 1 illustrates the planning context of the study area.

2. The Natural Environment

Elevations within the study area range from 70 – 220m ASL, in some areas offering expansive views of Mt. Warning and the surrounding caldera rim. The predominant soil landscapes comprise red and yellow podzols overlaying Bundamba Group sediments (Morand 1996), with some localized alluvial terraces. Vegetation cover ranges from riparian communities along the Tweed River within which Flooded Gum *Eucalyptus grandis*, Weeping Bottle-brush *Callistemon viminalis*, Water Gum *Tristaniopsis laurina* and Silky Oak *Grevillea robusta* are common, to extensive areas of wet and dry sclerophyll forest in more upland areas; these are variously dominated by Brush Box *Lophostemon confertus*, Pink Bloodwood *Corymbia intermedia*, Grey Gum *Eucalyptus propinqua*, Flooded Gum *E. grandis*, Sydney Blue Gum *E. saligna*, White Mahoganies *E. carnea/acmeniodes*, Tallowwood *E. microcorys* and Northern Grey Ironbark *E. siderophloia*. Small patches of lowland sub-tropical rainforest also occur in some drainage lines and alluvial terraces while elsewhere, large expanses of cleared land and areas devoted to plantation forestry are apparent. Figure 2 illustrates the extent of contemporary vegetation cover within the study area.

The natural vegetation remaining within the study area reflects a long history of intensive and unsustainable logging practices. Despite this, the balance landholdings retain a number of important ecological attributes, notably the relatively large areas of sclerophyll forest, and small patches of lowland subtropical rainforest. Because of the logging history, there is a dearth of old growth (hollow-bearing) trees on the site and their absence/low density will be a limiting factor in longer-term recovery of biodiversity values. From this perspective, earlier survey work by Gilmore and Milledge (1984) recorded a depauperate yet diverse flora and fauna on the site, the extent of which no doubt reflects both the history of past disturbance(s) and the proximity of other large areas of forest, including what is now Mebbin National Park. Notable amongst the 141 vertebrate species recorded by Gilmore and Milledge (1984) are a number of threatened species (see below), in addition to some unusual and/or uncommonly sighted species such as Fletcher's Frog *Lechriodus fletcheri*, Logrunners *Ortonyx temminckii*, Paradise Riflebirds *Ptilioris*

paradiseus, Feather-tailed Gliders *Acrobates pygmaeus* and Greater Gliders *Petauroides volans*

As alluded to above, a number of flora/fauna species and ecological communities of interest occur within the boundaries of the balance landholdings. However, it must be reiterated that there has been no formal survey work undertaken in the study area since the work of Gilmore and Milledge (1984), thus the number of threatened species known to be utilizing habitat within the balance landholdings can reasonably be expected to increase with further survey effort.

Flora/fauna species and ecological communities of particular interest within the balance landholdings include the following:

Flora

i) ROTAP Species (Briggs and Leigh 1995)

Black Walnut[1,4] *Endiandra globosa* – ROTAP Conservation Status: 2RC-

2RC-: 2 = localized within a restricted geographic area; R = at least one population known to occur within secure habitat, C- = population size within reserves unknown.

ii) Threatened Species

Green-leaved Rose Walnut[1] *Endiandra muelleri* - listed as **Endangered** for purposes of NSW Government's *Threatened Species Conservation Act 1995*.

Rough-shelled Bush Nut[3] *Macadamia tetraphylla* - listed as **Vulnerable** for purposes of NSW Government's *Threatened Species Conservation Act 1995*.

Fauna

i) Threatened Species

Invertebrates

No threatened Invertebrates have thus far been recorded from within the balance landholdings.

Amphibians

No threatened Amphibians have thus far been recorded from within the balance landholdings.

Reptiles

No threatened Reptiles have thus far been recorded from within the balance landholdings.

Birds

White-eared Monarch[1,2] *Monarcha leucotis* - listed as **Vulnerable** for purposes of NSW Government's *Threatened Species Conservation Act 1995.*

Rose-crowned Fruit Dove[1,2] *Ptilinopus regina* - listed as **Vulnerable** for purposes of NSW Government's *Threatened Species Conservation Act 1995.*

Mammals

Coastal Planigale[1,2] *Planigale maculata* - listed as **Vulnerable** for purposes of NSW Government's *Threatened Species Conservation Act 1995.*

Koala[1,2,4] *Phascolarctos cinereus* - listed as **Vulnerable** for purposes of NSW Government's *Threatened Species Conservation Act 1995.* Population status is unknown but sightings over last decade suggest presence of small and widely dispersed population within the balance landholdings.

Grey-headed Flying Fox[1] *Pteropus poliocephalus* – listed as **Vulnerable** for purposes of both the NSW Government's *Threatened Species Conservation Act 1995* and the Commonwealth Government's *Environmental Protection and Biodiversity Conservation Act 1999.*

Sources: [1]Gilmore and Milledge (1984); [2]NSW Wildlife Atlas; [3]Biolink; [4]Kerry MacMunn (Inter-Active).

Threatened species records for the study area (where known) are detailed in Figure 3.

ii) Endangered Ecological Communities (EECs)

(a) *Lowland Subtropical Rainforest on Floodplain* (LSTRF) *in the North Coast Bioregion* is listed as an EEC for purposes of the NSW Government's *Threatened Species Conservation Act 1995*. LSTRF occurs along lower elevation drainage lines and/or alluvial terraces in several locations within the balance landholdings, the largest of which is located to the west of Central Hill (see Fig. 2).

(b) *River flat Eucalypt forest on Coastal Floodplains* (RFEFCF) *of the NSW North Coast, Sydney Basin and S/E corner bioregions* is listed as an EEC for purposes of the NSW Government's *Threatened Species Conservation Act 1995*. Relic RFEFCF occurs in patches along the Tweed River, including the riparian zone within the proposed village planning precinct.

iii) Kunghurloo Creek

Kunghurloo Creek bisects the balance landholdings as a northeasterly draining, third order stream that has it's headwaters in the adjoining Mebbin National Park. This particular watercourse is an important ecological feature of the balance landholdings. Unfortunately, historical land uses have compromised the visual amenity and integrity of this watercourse by excessive clearing within the riparian zone that has facilitated weed invasion in many areas.

3. Existing Use

The study area has a long history of use that has predominantly focused on timber harvesting, silviculture and beef cattle grazing. As testimony to this history, a relic sawmill and associated infra-structure still remain at Central Hill (Fig. 4), elements of which potentially lend themselves to future use for educational purposes. Current landuse activities include cattle grazing, plantation forestry and educational activities. Field inspections also confirm that the juxtaposition of the balance landholdings with the adjoining national park estate results in a flow over of recreational pursuits such as bush walking and less desirably - trail bike riding. Moreover, the two properties share common access/egress points in the form of Lemon Tree and Walter's Roads,

and joint interests for the purposes of bushfire management. Hence the NSW National Parks and Wildlife Service is a key stakeholder with specific interests in longer-term management of the study area generally, aspects of which are discussed in more detail below.

Figure 4. Relic sawmill at Central Hill within the balance landholdings. A potential interpretive resource?

i) Plantation Forestry

Approx 80ha of the site are currently devoted to plantation forestry (see Fig 2). These plantations were originally established in 1995 through a joint agreement between the then landholder and State Forests of NSW, with sites planted to a mix of predominately *Eucalyptus grandis* (Flooded or Rose Gum), *E. dunnii* (White Gum) and *E. pilularis* (Blackbutt).

ii) Educational Activities

A local company - Inter-Active Pty. Ltd. - currently provides a range of outdoor activities for primary and secondary school children, the focus being on nature-based activities, individual character development and team building. The company is in the process of purchasing a small area of the balance landholdings and maintains a financial agreement with the current owner for ongoing use of some areas of the site. Key areas of interest for

Inter-Active include the Tallowwoods and Muddy Dams (canoeing), Central Hill (camping and ropes course) and an area known as the Pinnacle Spur (ropes course). A number of informal walking tracks within the forested, southeastern portions of the balance landholdings also cater to orienteering activities while also linking each of the abovementioned areas.

iii) National Parks and Wildlife Service

Various locations within the study area offer expansive views of the surrounding World Heritage listed national park estate including Nightcap and Mt. Jerusalem National Parks to the east-southeast, Mt. Warning National Park to the north and the Border Ranges National Park to the west-southwest, while the western boundary of the balance landholdings directly adjoins Mebbin National Park. Management of these natural areas is essentially governed by the *Parks and Reserves of the Tweed Caldera Plan of Management* (NPWS 2004). Issues arising from this Plan of Management (PoM) that are of relevance to the balance landholdings include the following:

a) Lemon Tree Road

Lemon Tree Road enters the balance landholdings from the southwest and hence provides direct access into and out of Mebbin National Park. The PoM initially proposed that this road be maintained as a 4WD dry-weather only road to the vicinity of a tree known as the Giant Ironbark. The Giant Ironbark died in 2004, thus necessitating a review of this provision. Based on discussions with local DEC staff, Lemon Tree Road is now proposed to be retained for management purposes only.

b) Walter's Road

Walter's Road enters the balance landholdings from the northwest and also provides a direct access into and out of Mebbin National Park. Walter's Road and Lemon Tree Road are connected by an internal track within the balance landholdings and field inspections suggest regular use of this link by trail bike riders and 4WD vehicles. Based on discussions with local DEC staff, Walter's Road is also proposed to be retained for management purposes only.

c) Cutters Camp

Cutter's Camp is the primary visitor facility in Mebbin National Park and functions as a picnic/camping area. Cutter's Camp is located within 1km of the extreme northwestern corner (i.e. Walter's Corner) of the balance landholdings. From Cutter's Camp there is a small (~ 400m) walking track that winds down to Byrrill Creek. The PoM specifies a maximum camping limit of 20 persons for the camping area and also proposes to extend the existing walking track to create a loop walk.

4. The Integration Concept

Rarely does an opportunity present itself to effectively integrate a proposed new village with a change to surrounding landuse such that it has the potential to enhance the proposed community's lifestyle, provide important employment opportunities and generally promote more ecologically sustainable land use practices. Detailed below is a conceptual basis for achieving such an outcome, balanced necessarily in favour of ecosystem recovery and conservation but otherwise inferring the need for some form of supporting development within the balance landholdings.

a) The Village Precinct

The Nightcap Village proposal has the potential to establish benchmark standards in terms of the application of ESD principles within the Tweed LGA. Thus it will be important that the planning process demonstrate a commitment to ecologically sustainable development objectives in terms of underlying design principles, water management, waste recycling and the maintenance/enhancement of biodiversity values and essential ecological processes. Some underlying principles that might guide this process include:-

- novel methods of waste recycling and on-site management/provision of potable water resources,
- demonstrable use of alternative energy sources,
- emphasis on passive forms of intra-village connectivity, including pedestrian pathways and/or cycleways,
- emphasis on open space and retention of native vegetation with *post*-development landscaping making exclusive use of native species likely to occur naturally on the site and/or endemic to the Tweed Valley, and
- prohibiting the keeping of domestic dogs and cats within the village precinct.

Remaining patches of vegetation that currently buffer the Tweed River are important in terms of providing visual amenity and assisting essential ecological processes (maintenance of water quality in the Tweed River generally), while also having conservation and biodiversity value(s) in their own right. Hence there is a need to ensure that this area is effectively buffered against adverse impacts arising from development in the village area. The

riparian zone is also likely to be a focal point of community interest for both passive recreation and rehabilitation purposes. From this perspective, the following actions are proposed for consideration:

- incorporation of controlled pedestrian access into the riparian zone, presumably by way of a feature boardwalk with occasional viewing platforms at appropriate vantage points, and
- as a condition of any development consent, preparation of a management plan to guide longer-term rehabilitation of the riparian area.

The Balance Landholdings

The balance landholdings present a number of opportunities for consideration that, collectively, can only serve to enhance the village concept. Foremost of these are opportunities for eco-tourism, consistent with the Plan of Management for the Tweed Caldera Parks and Reserves (NPWS 2004) that also promotes the need for alternative visitor opportunities in the Tweed region to reduce perceived visitor pressure(s) on national park estate and especially on Mt. Warning National Park which receives in excess of 100,000 visitors per annum.

Notwithstanding the history of disturbance, the balance landholdings contain a number of significant ecological areas including Endangered Ecological Communities. A number of threatened species have been recorded from the site, the list is not comprehensive and additional species can be expected to occur, especially given the proximity of the adjoining Mebbin National Park. Opportunities are thus available to take pressure of the national park estate by offering a variety of alternative nature-based experiences as follows:

Walter's Corner

Walter's Corner is located in the northwestern corner of the balance landholdings in relatively close proximity to Cutter's Camp. Unfortunately, ill-advised clearing over time has reduced the visual and ecological amenity of this area such that the riparian zone is weed infested and extensive rehabilitation works will be required in order to to create a visually aesthetic

setting. Nonetheless, the site has potential to provide alternative accommodation in a natural setting (camping, cabins, day use facilities).

Rainforest Picnic Area

A small clearing adjacent to the area of LSTRF located to the west of Central Hill offers a potential day-use area in a visually appealing setting that has important conservation values.

Central Hill Eco-tourism Precinct

This area is, as it name implies, centrally located within the balance landholdings and offers expansive views* of Mt. Warning and the surrounding caldera rim. Importantly, the site is largely cleared and thus has the potential to serve as a focal point for activities within the balance landholdings while also offering additional nature-based eco-tourism and educational opportunities, elements of which might include:

a) Field Study Centre

Such a centre could provide resources and establishment of educational programs focused on research/monitoring of fauna, flora and other biodiversity issues, plantation forestry. A wide target audience is likely including primary, secondary and tertiary educational institutions.

b) Conference Facilities

The Tweed region is poorly serviced in terms of conference venues in a natural setting, in close proximity to adjoining World Heritage listed national parks and that can offer a variety of ancillary activities.

c) Motel/Cabin & Camping

In support of a) and b) above, the Central Hill precinct is also large enough to provide a variety of accommodation opportunities from motel/self-contained cabin type accommodation to river flat camping areas.

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* see cover photograph

d) Walking track network

A linked, walking track network is envisaged that offers access to Walter's Corner, the Rainforest area and other areas/sites of interest within the balance landholdings, thus providing walks of both short and longer duration with possible links into the adjoining national park(s). Preliminary field work indicates that it will be possible to connect each of the above proposals with a high quality walking trail network with a maximum gradient of between 0 – 5 degrees.

e) Trail riding

Trail riding using either horses or mountain bikes is an increasingly popular passive recreational activity, both of which could be catered for on the network of tracks that occur within the balance landholdings.

f) Internal Road/Track Network

The balance landholdings contain an extensive network of roads and tracks that essentially reflect both past and present landuse activities (Fig. 5). Consistent with the concepts presented herein would be a requirement to consolidate the existing track network in order to provide a 2WD dry-weather only circuit road that is clearly linked to the village precinct. The end result of this proposal would see some of the existing track network closed and allowed to regenerate, with those tracks remaining to be designated and managed as either:

(i) 4wd and/or horse and/or bicycle dry weather only, and

(ii) Pedestrian access (bushwalking) trails only.

Implications

In accord with the above, regular maintenance, provision for drainage works and upgrading of creek crossings will be required in a number of locations. Site specific rehabilitation and concept plans required for Walter's Corner, the Rainforest patch and the proposed Central Hill Eco-tourism precinct will also need to be developed. The long-term outcome envisaged within this document (Figure 6) is for an alternative land use scenario that would see approximately 60 - 70% of the balance landholdings dedicated to conservation

and eco-tourism pursuits, with the remaining 30 - 40% potentially devoted to plantation forestry. From this perspective, the potential benefits for a village in context with its surroundings should be readily apparent.

5. Issues & Recommendations

Preceding sections have raised various issues associated with past, current and future landuse practices within the study area generally, and the balance landholdings in particular. With regard to the latter, below we have attempted to elaborate on these problems/issues in much the same order as the information from which they originate, while also providing a related series of preliminary recommendations as follows:

1. Planning context

- The balance landholdings are currently zoned 1(a) Rural. Any material change in landuse activities, such as those proposed in this report, may require specific planning approvals and/or be inconsistent with the current zoning.

Recommendation No. 1: the landowner should liaise with Tweed Shire Council administrators and planners to seek approval in principle for the material changes in landuse outlined in this report and, if this is forthcoming, seek formal advice on planning implications.

Recommendation No. 2: subject to approval in principle being obtained from TSC, a detailed site/concept plan for the Central Hill Eco-tourism precinct and associated developments should be prepared.

2. The Natural Environment

- Available knowledge on flora/fauna and ecological communities of interest is scant and both the study area and longer-term management interests can only benefit from additional flora/fauna survey work and more detailed mapping/assessment of vegetation communities. The relatively large areas of sclerophyll forest have excellent recovery

potential (in terms of increasing overall species richness) given the proximity and known biodiversity values of the adjoining Mebbin National Park. The presence of an EEC within the village planning precinct will need to be taken into account.

Recommendation No. 3: in order to further refine alternative land use opportunities, additional flora/fauna survey work and associated vegetation mapping should be undertaken within the balance landholdings.

Recommendation No. 4: that, with the exception of works required for the management of areas devoted to forestry plantations, no further logging be permitted within the balance landholdings.

- Historical land uses and associated land clearing activities have had a detrimental effect on the water quality and ecological integrity of Khungurloo Creek. The riparian zone is weed infested in many areas such that extensive rehabilitation works will be required in order to restore visual amenity and ecological values. Alternative land use opportunities within the balance landholdings will need to be considered in the context of their potential for indirect downstream impacts (i.e. increasing siltation, turbidity).

Recommendation No. 5: Ongoing land use management practices within the balance landholdings should impose mandatory 10 - 15m non-disturbance buffers on both sides of all first and second order drainage lines and/or streams, in addition to a minimum 30m non-disturbance buffer on both sides of Khungurloo Creek.

Recommendation No. 6: Preparation of a management plan to address the issue of gradual rehabilitation of degraded riparian areas in both the balance landholdings and village precinct would be desirable, and should ultimately prove useful/instrumental in seeking external funds to undertake such work.

3. Existing Use

- Plantation Forestry is arguably the future of Australian hardwood production and further serves as a demonstrably ecologically sustainable landuse if properly managed; hence areas under plantation can serve as an important educational resource, while also providing long-term research and monitoring opportunities. A reasonable measure of vehicular access to plantations must be maintained. Other currently cleared areas of the balance landholdings, especially in the northeast, potentially lend themselves to this form of landuse.

Recommendation No. 7: The potential for establishment of additional plantation forestry areas, particularly in the northeast of the balance landholdings should be explored by the landowner.

- The site proposed for purchase by Inter-Active will need to be effectively buffered/screened from the proposed village site in order to maintain the illusion of remoteness in a bushland setting. Ongoing needs for access by Inter-Active to the areas mentioned in 2 above will also need to be carefully managed so as to avoid any conflicts with future use of the balance landholdings.

Recommendation No. 8: Liaison between the landowner and Inter-Active Pty. Ltd is required with a view to the planting of an effective buffer of native vegetation in order to screen the proposed village site ASAP.

4. National Parks

- Both Lemon Tree Road and Walter's Road currently function as unmanaged access points through both the Mebbin National Park and the balance landholdings; inspections reveal that both roads are regularly utilized by trail-bike riders and/or 4WD vehicles. Both roads also have strategic importance for bush fire fighting purposes and, in association with the primary north-south track that links them within the balance landholdings, should be managed for this purpose. On-site

inspections with DEC staff have identified suitable locations on both Lemon Tree Road and Walter's Road at which locked access gates could be installed.

Recommendation No. 9: Ongoing liaison with local DEC staff regarding control of access, the installation of appropriate signposting and joint fire management interests is warranted.

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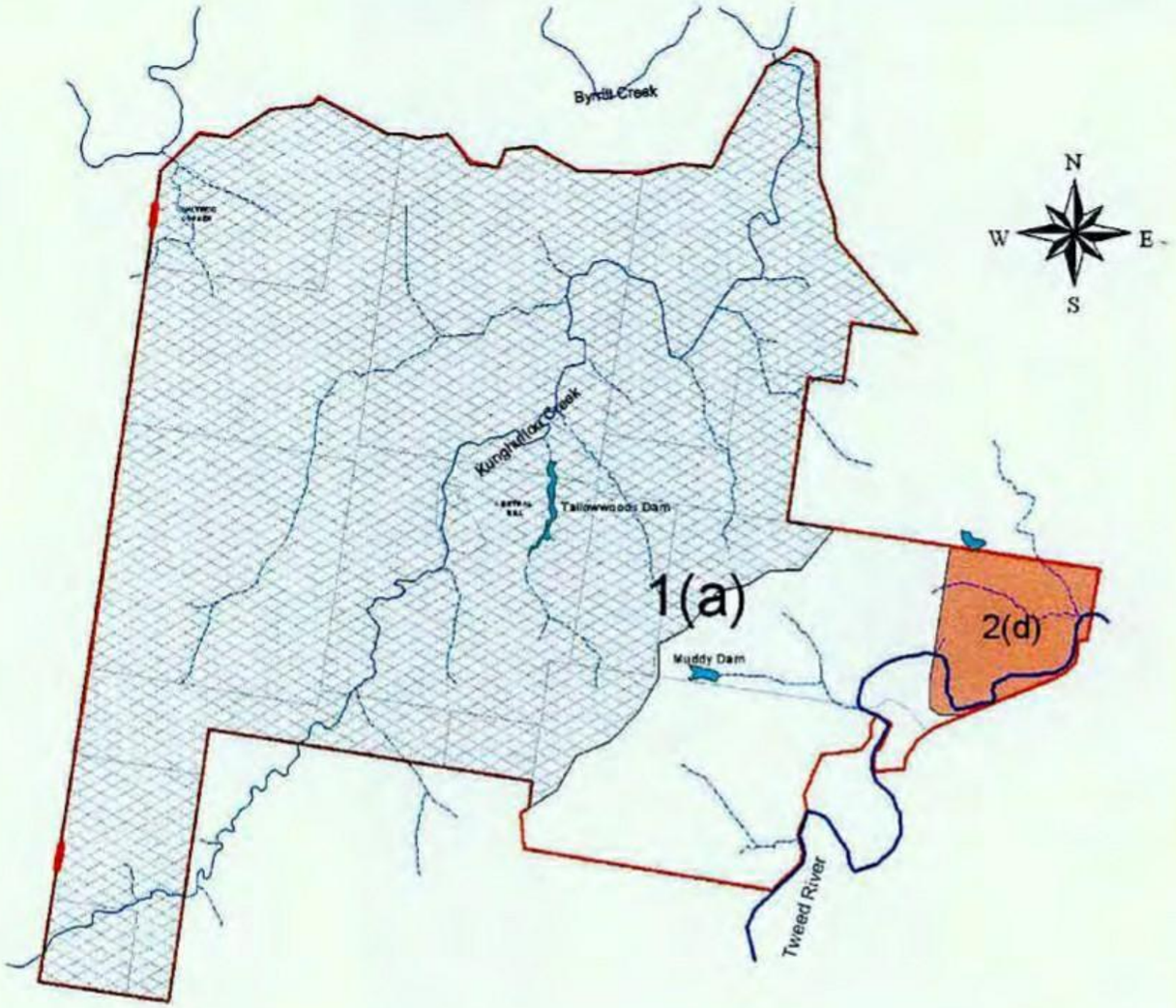

Nightcap Village
Integrated Landuse Study

LEP Clause 52

Study Area

Village Zone

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Figure 1. Site Context: Land Zonings and Planning Constraints.

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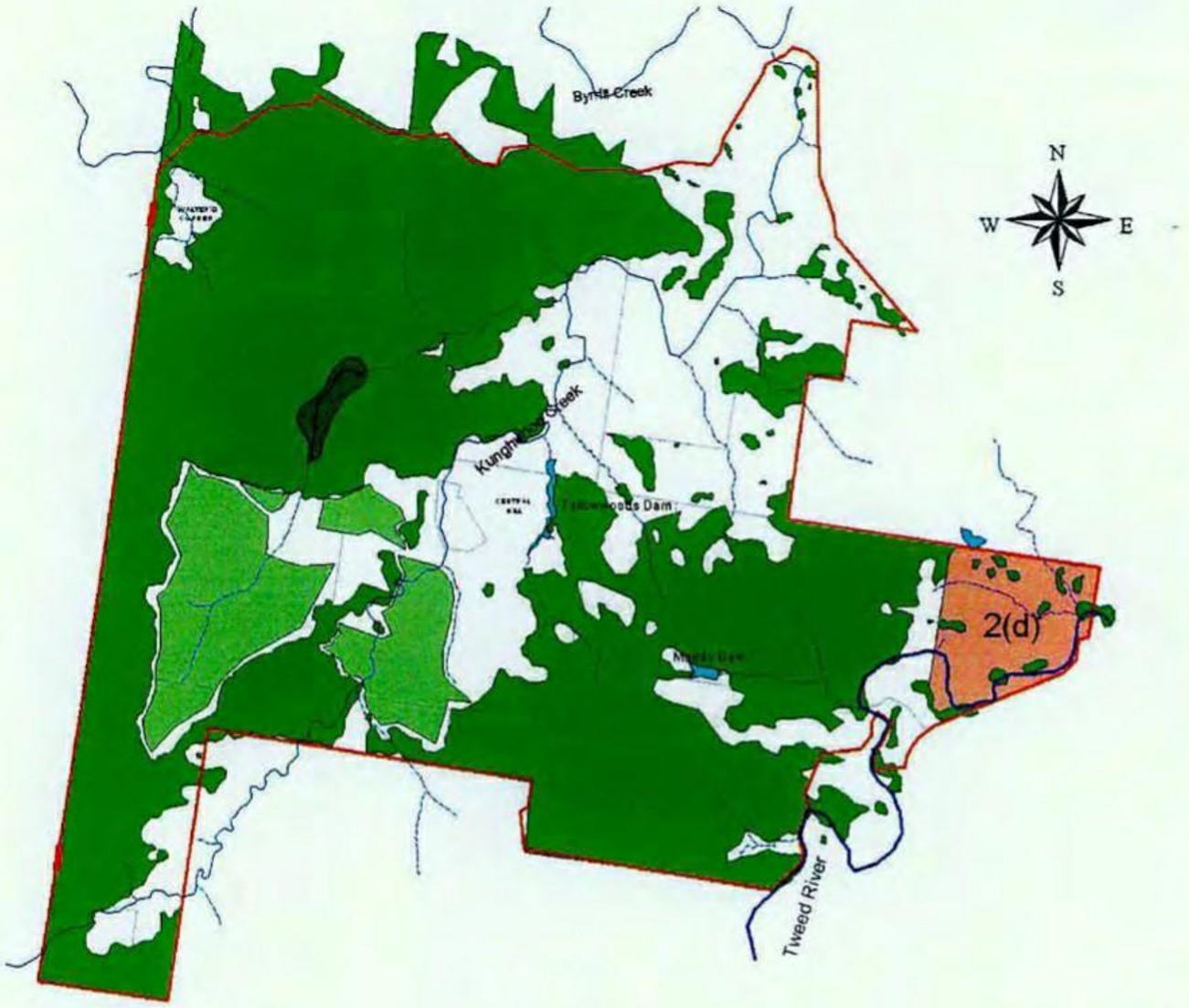

Nightcap Village Integrated Landuse Study

2nd Order Streams

Vegetation Cover
- Forest
- LSTRF
- Plantation

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Figure 2. Vegetation Cover

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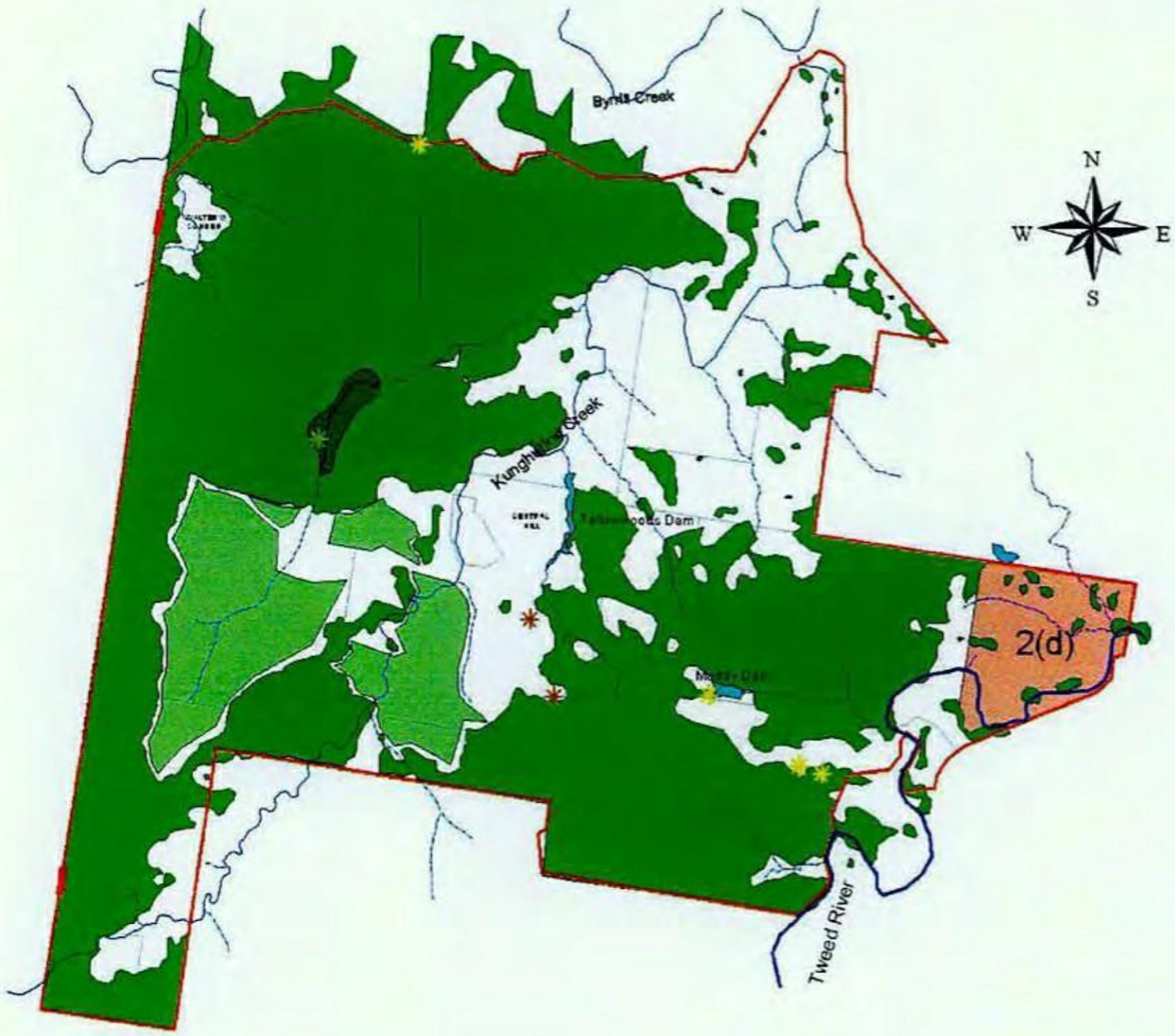

Nightcap Village
Integrated Landuse Study

Threatened Species
- Coastal Planigale
- Koala
- White-eared Monarch

Study Area

Vegetation Cover
- Forest
- LSTRF
- Plantation
- Village Precinct

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Figure 3. Threatened Species Records

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Nightcap Village Integrated Landuse Study

Tracks

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Figure 5. Track Network

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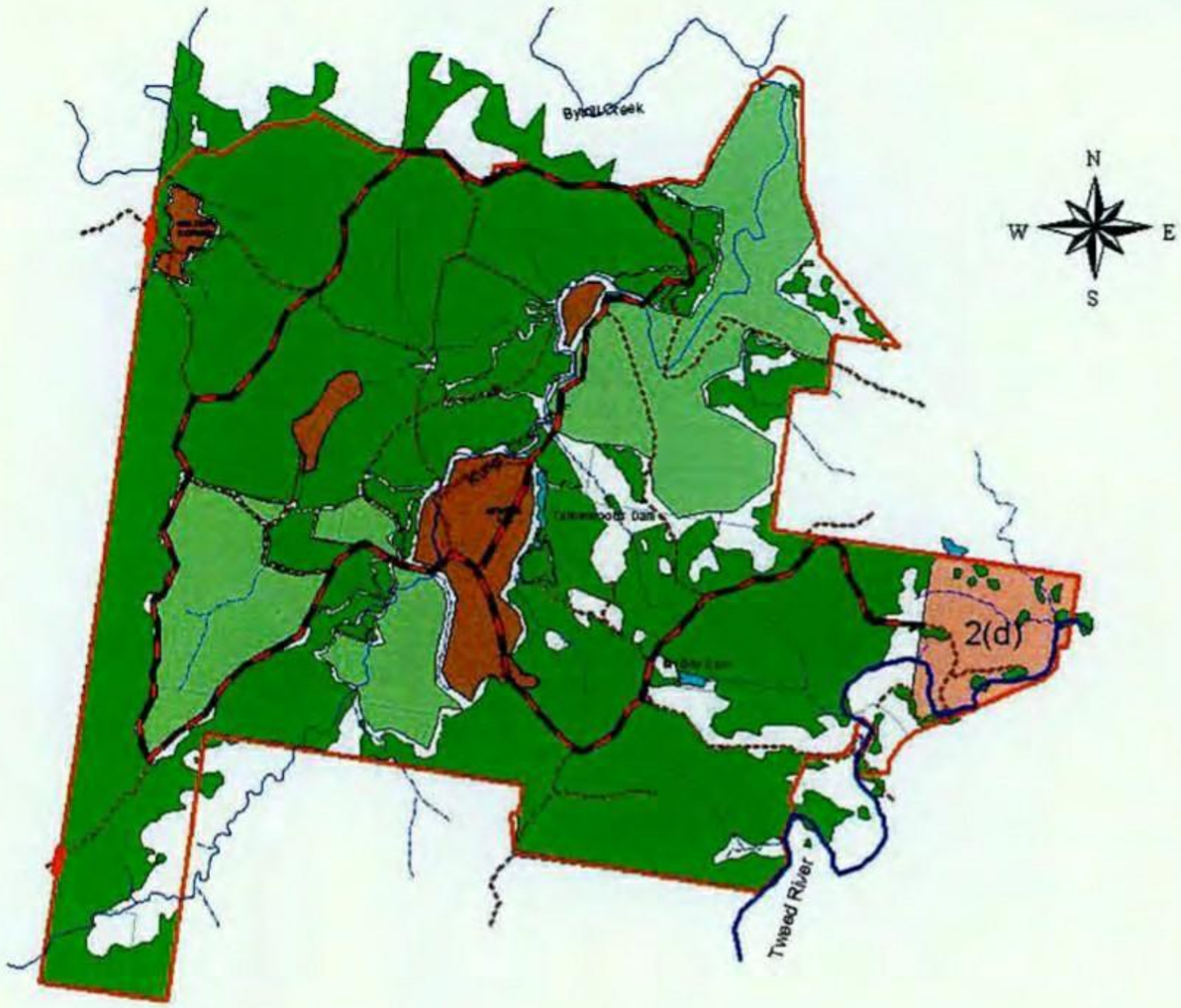

Nightcap Village
Integrated Landuse Study

2WD Dry Weather
Other Tracks

Future Landuse
Eco-tourism Precinct
Plantation
Regeneration

Study Area

Vegetation Cover
Forest
LSTRF
Plantation
Village Precinct

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Figure 6. Future Landuse Options

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